

(54) WHITE LASER LIGHT MIXING DEVICE

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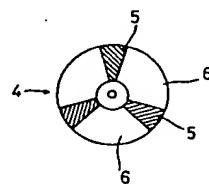
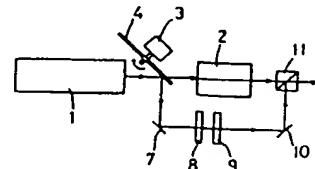
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(71) ASAHI OPTICAL CO LTD (72) YUZURU DOI

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PURPOSE: To obtain stable white laser light by a simple constitution and to obtain high output power readily, by mixing laser light, which is split in a light path and whose wavelength is converted, and laser light, which includes a plurality of the same wavelengths as those when the light is oscillated, in a laser light mixer.

CONSTITUTION: When laser light, which is oscillated in an argon laser oscillator 1 and has the wavelengths of 488nm (blue green) and 514.5 nm (green) passes a coloring matter 2, the light is converted into argon dye laser light having the wavelength of 630nm (red). The laser light mixer is, e.g., a half mirror, which transmits the wavelength of 630nm and reflects the light beams having the wavelengths of 488nm and 514.5nm. The light axes of all the laser light beams agree, and the laser light beams having the wavelength of three primary light colors are mixed in a time division mode and emitted. When a rotary body 4 is rotated at a high speed higher than a specified speed, the white laser light is perceived by the human eyes. Therefore the laser beams having the two colors among the three primary colors are sufficient to be oscillated. Therefore, the device is simple, the manufacturing cost is low, the output is stable and the high output power can be generated.



(54) SEMICONDUCTOR LASER UNIT

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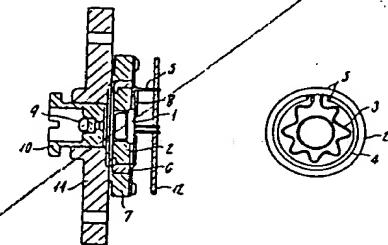
(21) Appl. No. 61-104496 (22) 7.5.1986

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PURPOSE: To keep the temperature of a laser diode within a specified range, by forming a resistor and a heat sensitive element around a laser diode attaching position by printing, and controlling the conduction of a current to the resistor based on the detected temperature of the heat sensitive element.

CONSTITUTION: A laser diode 1 is heated by a resistor 3, which is formed in a holding member 2 by printing. The holding member 2 of the laser diode 1 is formed by alumina ceramics and the like characterized by high heat conductivity and low specific heat. By forming the resistor 3 on the surface of the holding member 2, by printing, the holding member 2 forms a ceramic heater, whose linear expansion coefficient is small. The temperature of the laser diode 1 is controlled by the ceramic heater. Thus, the temperature control efficiency is high, and the heat capacity of the laser diode holding member, in which the resistor is formed, becomes small. The load at the time of heating when the current is conducted to the resistor becomes small. In this way, the control characterized by quick response to the preset temperature can be performed.



(54) SEMICONDUCTOR LASER AND MANUFACTURE THEREOF

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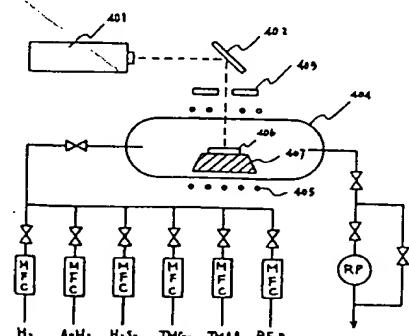
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PURPOSE: To obtain a semiconductor laser characterized by high light emitting efficiency and a low threshold current value, by simultaneously forming an active layer and the third and fourth clad layers in a planar state, by a chemical vapor growth method of organic metal, by which light is selectively emitted by using a mask.

CONSTITUTION: The raw material gases of H₂, AsH₃, H₂Se, TMGa, TMAI and DEZn are introduced into a chamber 404 through mass-flow controllers (MFC). Then the gases are reacted, and thin films of GaAs, Al_xGa_{1-x}As and the like are epitaxially grown. A susceptor 407 is heated to 600~800°C by induction heating using an RF coil 405. Meanwhile, light is emitted from a light source 401 such as an excimer laser unit and projected on a substrate 406 through a mirror 2. A mask 403 is provided in-between. The light is projected on the arbitrary positions of the substrate in correspondence with the mask pattern, and epitaxial growing can be performed. Thus the semiconductor laser characterized by a small threshold current level and high light emitting efficiency can be formed stably at a high yield rate.



a: Exhaust gas